

# Prevention

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**New Recommendations  
for Use of Antivirals  
to Treat or Prevent  
Influenza in the  
2005-2006 Season**

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Web site at  
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**Arizona  
Department of  
Health Services**

January/February 2006

## What is the Best CPR? “Getting to the Heart of the Matter”

By Ben Bobrow, MD and Lani Clark

The recent release and media coverage of the American Heart Association 2005 Adult Basic Life Support (BLS) and Advanced Cardiac Life Support (ACLS) guidelines has peaked interest in the question as to what is the optimal method for performing life sustaining cardiopulmonary resuscitation (CPR) and defibrillation for cardiac arrest victims.

### Outcome Depends on Intervention:

Cardiac arrest remains a significant cause of mortality, accounting for more than a thousand deaths a day in the United States alone. With current health care delivery systems in place, survival to hospital discharge remains extremely poor with estimates at or below 5%. In many of the nation's largest cities, neurologically intact survival is as low as 1%.

Outcome after cardiac arrest is dependent on critical interventions; particularly effective chest compressions, early defibrillation, and advanced life support (AHA Scientific Statement 2004). The reasons for the dismal survival rates are many but two major contributing factors are the lack of bystander initiated CPR, and the apparent under utilization of AEDs by the lay public. Both of these have been clearly documented in the state of Arizona through instituting a statewide cardiac arrest and AED registry termed the Save Hearts in Arizona Registry & Education (SHARE) Program.

### The Key to Survival:

Ventricular Fibrillation (VF), a potentially treatable dysrhythmia, remains the underlying cause in a majority of these cases, and early defibrillation has shown to significantly increase survival.

However, defibrillation is not always immediately available and thus CPR is required to support the victim's brain and heart with vital oxygen until a defibrillator arrives. Thus the combination of CPR and

AED use is key to survival from out of hospital cardiac arrest.

The lack of bystander initiated CPR (currently 65% of cardiac arrest victims in Arizona receive no bystander CPR) can potentially be overcome in our state and globally by teaching chest-compression-only, or continuous chest compression CPR (CCC-CPR). Chest

compression only CPR has been shown in animals to be dramatically better than no bystander CPR and even better than mouth-to-mouth rescue breathing when chest compressions were interrupted for a realistic 16 seconds for rescue breathing.

Because time to defibrillation remains a critical element in a successful resuscitation, the Automated External Defibrillator (AED) was developed to broaden the pool of available rescuers. The addition of AED training to CPR training in lay volunteers has shown superior survival benefit to conventional CPR training alone. Several studies have even demonstrated that very young previously untrained children can be taught to successfully operate an AED.



Continued on page 2



In fact, in 2005, a collaborative research study conducted by the Mayo Clinic and the SHARE Program clearly showed that 8<sup>th</sup> grade Arizona public school students can safely and efficiently be taught and retain the skills to properly perform CCC-CPR and AED use in a condensed 1-hour course on campus.

## What Have We Learned About CPR?

To be successful, CPR must be started as soon as a victim collapses, thus it is the public that **MUST** know to call 9-1-1 immediately, then perform effective chest compressions and use an AED.

We have learned that when these events occur in a timely manner, CPR makes a difference and saves lives. We have also learned that chest compressions are the vital component of CPR that many times are interrupted too frequently and performed in a suboptimal fashion.

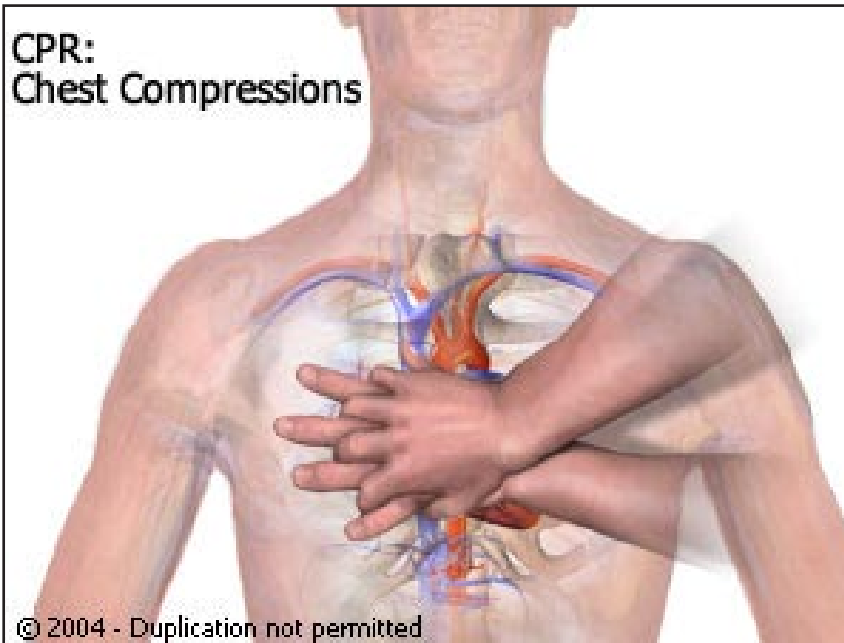
## New Developments:

The new AHA 2005 Guidelines have increased emphasis on the importance of chest compressions: "Rescuers will be taught to "push hard, push fast" (at a rate of 100 compressions/min), allow complete chest recoil, and minimize interruptions in chest compressions."



## SHARE Program:

The SHARE Program is a voluntary, statewide, HIPAA compliant cardiac arrest network and database for out-of-hospital cardiac arrest and AEDs in Arizona. Since 2004, the SHARE Program has partnered with



over 20 Fire Departments and private ambulance companies in every Region of Arizona and the Sarver Heart Center CPR Research Group to build this essential statewide cardiac arrest network. The SHARE AED database currently tracks over 2,500 AEDs (and who is trained on each site to use them) in Arizona. These databases are showing the times and places when cardiac arrest occurs, if bystander CPR is performed, not performed, or could be improved upon along with many other vital data points. The Bureau of Emergency Medical Services is also working with research teams looking at cardiac arrest all over North America.

The focus of the SHARE Program this coming year is on continuing to expand the infrastructure for collecting pre hospital cardiac arrest data from EMS providers across the state and track their survival utilizing an algorithm of providing pre and post shock chest compressions for adult VF victims. This data is helping to determine the optimal sequence of interventions for advanced cardiac life support along other potential new treatments that will improve cardiac arrest survival in Arizona and globally.

Ben Bobrow, MD is Medical Director for the Bureau of EMS and Lani Clark is Research and QI Director for the Bureau of EMS. For more information visit the [www.azshare.gov](http://www.azshare.gov) website.

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Journal of the American Heart Association- Circulation Vol 112, No 24, December, 13, 2005

# Diabetes In Arizona

by Magda Ciocazan, M.PH.

Diabetes will place an immense toll on Arizona's various health care delivery systems in the next decade. According to the 2004 BRFSS data, 6.6 percent of Arizonan adults, or approximately 284,102, have been told by a doctor they have diabetes, and an additional 1.2 percent of women have gestational diabetes.

In 2004, there were more than 91,000 people hospitalized due to diabetes, with hospital charges amounting to more than \$2.5 billion. According to the American Diabetes Association, type 2 diabetes is being diagnosed more frequently than ever before in children and adolescents, particularly in American Indians, Hispanic/Latino Americans, and African Americans. However, it is difficult to obtain exact figures for diabetes prevalence, because there is no systematic collection of information on the number of cases. Additionally, studies have shown that about one-third of all people with diabetes have not been diagnosed.<sup>1</sup>

Due to the increase of obesity, physical inactivity, and poor nutrition in Arizona, the prevalence of diabetes is also increasing. The main lifestyle factors that help prevent and

manage diabetes are maintaining a healthy weight (BMI 18.5-25), adequate exercise, proper nutrition (especially consumption of high fiber and low fat foods) and eliminating the use of tobacco and alcohol. Managing stress, keeping hydrated and adequate rest also helps prevent diabetes and associated complications in those most at risk. Successful management of diabetes requires improvement in physician practices, modification of health care delivery systems, new societal attitudes regarding nutrition and

physical activity, and the empowerment of patients who must take charge of their disease.

The ethnic diversity of Arizona challenges our health care agencies in regards to comprehensive data collection and effective program development. With the help of its partners, the Arizona Department of Health Services (ADHS) continues to monitor diabetes indicators to determine the appropriate

direction for control efforts throughout the state.

*The Diabetes in Arizona: 2005 Status Report* examines the burden of diabetes and its complications in the state of Arizona. This document will be placed on the ADHS Diabetes Prevention and Control web site by the end of January 2006. This report, as well as other annual and county specific reports for diabetes, can be accessed under the Resources: Annual Reports link at the following web site: [www.azdhs.gov/phs/oncdps/diabetes](http://www.azdhs.gov/phs/oncdps/diabetes)

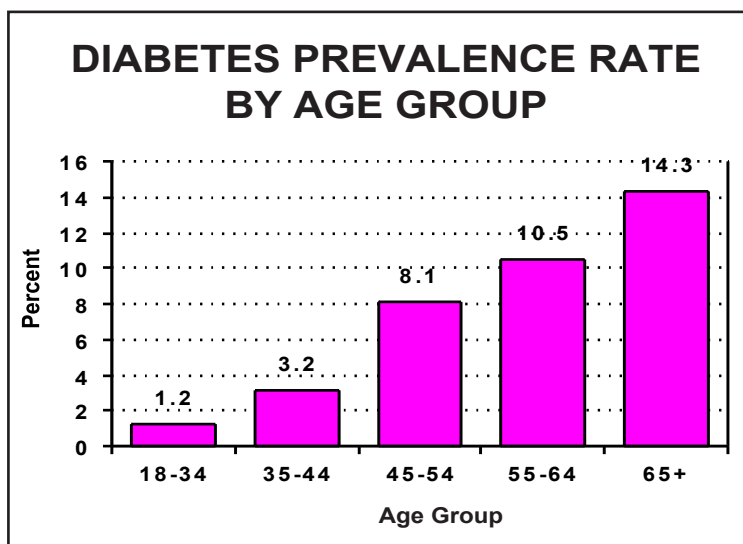
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## Prevalence of Diabetes in Arizona, 2000-2004

Source: Arizona BRFSS, 2000-2004.



## Estimated Number of Self-Identified Diabetics by County, 2004

Source: Arizona BRFSS, 2004.

County	Total
Apache	2,911
Cochise	6,369
Coconino	6,129
Gila	2,688
Graham	1,671
Greenlee	378
La Paz	1,108
Maricopa	170,895
Mohave	9,196
Navajo	4,605
Pima	46,586
Pinal	10,855
Santa Cruz	1,850
Yavapai	10,298
Yuma	8,563
Arizona	284,102



# Pandemic or Seasonal Influenza: Infection Control in Outpatient Settings

by Victorio Vaz

Of late, the news has been filled with discussions of a pandemic influenza. Most experts seem to agree that we are likely to face another pandemic; however, many scientific questions about the pandemic remain unanswered - when will it occur, how severe will it be, or will H5N1 be the causal agent? Yet, we do know that every year in the United States, on average 5% to 20% of the population gets the flu, more than 200,000 people are hospitalized for flu-related conditions and 36,000 deaths occur from complications of the flu.

Thus, irrespective of whether it is seasonal flu, or pandemic flu, prevention and control measures need to be in place in health care facilities to minimize the spread of flu and other respiratory infections and the associated burden of disease and death. Outpatient clinical settings are prime locations for spread of infectious diseases. Despite some possible differences between seasonal and pandemic flu in terms of incubation period, immunogenicity, mechanisms of spread and pathogenesis, at this time the primary strategies for preventing both are the same: vaccination, early detection and treatment, and the implementation of infection control measures. Vaccination remains the primary strategy for preventing infection and disease; health care personnel is one the groups for which vaccination is highly recommended. More information is available at [www.cdc.gov/flu/protect/keyfacts.htm](http://www.cdc.gov/flu/protect/keyfacts.htm) and [www.jfponline.com/Pages.asp?AID=1727&UID](http://www.jfponline.com/Pages.asp?AID=1727&UID)

Since a vaccine may not be available at the onset of the pandemic, flu containment will hinge upon appropriate infection control measures in place. To that end:

- Surveillance for respiratory illness is needed to limit contact between infected and non-infected patients through confinement in defined areas and/or by encouraging social “distancing”, i.e., at least three feet apart.
- Respiratory hygiene/cough etiquette should be promoted at the first point of contact with a potentially infected patient through posting visual alerts, providing tissues, **no-touch** receptacles for tissue disposal and masks for patients and visitors who are coughing or sneezing, ensuring hand washing sinks with soap and disposable towels and/or alcohol-based hand sanitizers, and encouraging coughing persons to sit at least 3 feet away from others: [www.cdc.gov/flu/professionals/infectioncontrol/resphgiene.htm](http://www.cdc.gov/flu/professionals/infectioncontrol/resphgiene.htm).
- Hand hygiene between patients and after contact with respiratory secretions need to be adhered to. Personal protective equipment (PPE) should be used for standard and droplet precautions. Further information on the selection and use of PPE can be found at [www.cdc.gov/ncidod/dhqp/gl\\_isolation\\_standard.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation_standard.html) and [www.cdc.gov/ncidod/dhqp/gl\\_isolation\\_droplet.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation_droplet.html).

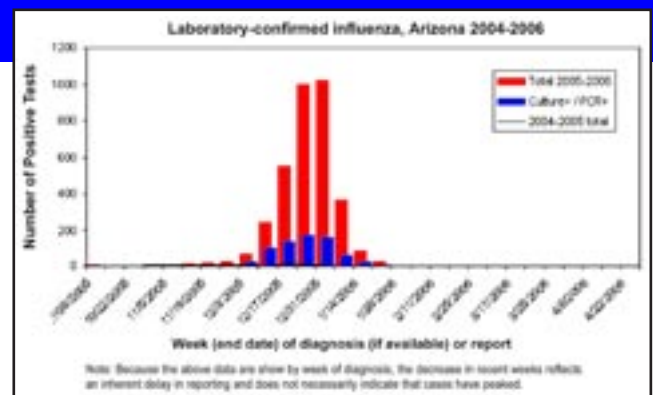
## Influenza Season Update

Influenza activity broke with tradition during the 2005-2006 season by starting in the western part of the United States. Frequently, high activity is noted first in the eastern states, followed by a westward sweep across the country. This year, Utah was the first state to report widespread activity (week ending December 17, 2005). Two weeks later, the entire southwest corner of the U.S. (7 states) reported widespread activity, with all other states reporting lower levels. Now, at the end of January, activity levels are decreasing in the western U.S. and other states are reporting increased levels.

Arizona first reported widespread activity the week ending December 24, 2005, and continued to report widespread activity until dropping to regional activity on January 23, 2006. This is earlier than Arizona's typical peak season. These activity levels are determined by reports of influenza-like illness from sentinel providers around the state, mandatory laboratory reporting of positive influenza tests, and other surveillance conducted by county health departments. A decrease in statewide activity does not indicate that influenza season is over; some regions of the state may continue to see influenza for weeks or months. Reports of laboratory-confirmed influenza for the season are shown in the figure.

During most influenza seasons, including last year's, there is a mix of influenza A and influenza B circulating in the community. This season the circulating strain so far has overwhelmingly been influenza A, with this strain accounting for over 95% of cases in both Arizona and the U.S. as a whole.

Arizona influenza surveillance data are available on the internet at [www.azdhs.gov/phs/oids/epi/flu/az\\_flu\\_surv.htm](http://www.azdhs.gov/phs/oids/epi/flu/az_flu_surv.htm) and are updated weekly.





**David Engelthaler,  
State Epidemiologist**

## Another One Bites the Dust...

As detailed in the current issue of Prevention Bulletin, CDC announced on January 14, 2006 that the adamantane influenza antivirals are no longer recommended for treatment of influenza during the 2005-2006 flu season, because of an alarming 91% level of resistance <sup>(1)</sup>. Resistance has become a four-letter word in both the clinical and public

health communities. Antibiotic resistance has forced the medical world to develop complex algorithms and alternative therapies to respond to bacterial infections. And although antiviral-resistance has been a threat, until now we have not seen a nearly complete evasion of an antiviral therapy.

Whether this adamantane resistance is use-induced (conferred by use of and subsequent adaptation to adamantanes) or is from a natural mutation in the current flu strains circulating this season, it is still one of the more disconcerting pieces of news this year. Time will tell us if adamantane-resistance is an ephemeral event, based on the genetics of the circulating strains, or if it confers evolutionary advantage to human influenza strains, and will therefore likely be a constant adaptation.

Additionally, one can only speculate about the future of the remaining anti-influenza drugs - the neuraminidase inhibitors (oseltamivir and zanamivir). Resistance has been documented in children treated with oseltamivir<sup>(2)</sup>, and various reports have documented varying levels of resistance to oseltamivir by the H5N1 avian influenza virus causing incidental human infections in Asia and Eastern Europe <sup>(3,4)</sup>. These unfortunate reports force us to consider resistance when responding to our annual flu outbreak as well as in the face of pandemic preparedness. A few things we should take from this news:

- Health care providers need to continue to focus on prevention of disease and transmission – encourage flu shots to all patients, and continue to promote respiratory etiquette and hand washing as a way of life
- Proper diagnosis and reporting (influenza is a laboratory reportable condition in Arizona) of illness will help not only to better understand to epidemiology of the annual flu season, but will help identify any resistance to antiviral therapies
- Antivirals are only one tool to help fight influenza (seasonal or pandemic) but their overall effectiveness is tentative, and may be fleeting. This should affect how we respond now and prepare for the future.

- CDC Health Alert Jan 14, 2006
- Kiso M, Mitamura K, Sakai-Tagawa Y, et al. Lancet 2004;364:759-765.
- N Engl J Med. 2005 Dec 22;353(25):2633-6.
- Dr. Anthony Fauci, Dec 5, 2005, Pandemic Planning: Convening of the States, Washington D.C.

## RSV Activity in Arizona 2005-2006

by Karen Lewis, M.D. & Shoana Anderson

Respiratory Syncytial Virus (RSV) became a laboratory-reportable disease in October 2004. Arizona laboratories now report positive RSV tests to the Arizona Department of Health Services (ADHS) on a weekly basis. With this new information, ADHS can let providers know when Arizona is experiencing an increase in RSV isolates.

Historically, the RSV season in Arizona begins between October and December. Although there are sporadic isolates of RSV throughout the year, once there begins to be an increase in RSV infections in the fall or early winter, the number of RSV cases rapidly increases and high numbers of RSV infections continue for several months.

RSV cases in Arizona began to be reported sporadically in the middle of October 2005. In November, ADHS notified health care providers to expect to see increasing RSV activity. RSV was reported steadily throughout December, and reports escalated at the end of December. As of January 14, 2006, there had been 246 laboratory confirmed cases of RSV in Arizona.

Monitoring RSV activity in Arizona can assist health care providers who provide RSV immunoglobulin injections to high-risk infants. In November 2005, when ADHS received increasing reports of RSV in Arizona, ADHS sent out electronic notification to health care providers to assist them with their plans for RSV immunoglobulin administration.

Conversely, once RSV activity starts to slow in the state, ADHS will send electronic notification to health care providers about the decrease in RSV cases. Providers will benefit by having real time data to help decide when to stop monthly RSV immunoglobulin injections. RSV cases are expected to remain high in January and February.

The tally for RSV cases reported in Arizona is posted weekly at the ADHS web site at [www.azdhs.gov/phs/oids/epi/flu/az\\_flu\\_surv.htm](http://www.azdhs.gov/phs/oids/epi/flu/az_flu_surv.htm) along with influenza surveillance information. Numbers of new RSV and influenza cases are updated every Monday.

Karen Lewis, M.D. is Medical Director, Bureau of Epidemiology and Disease Control and can be reached at 602.364.4562.



# NoteWorthy

## **2004 Infectious Disease Epidemiology Annual Report Available Online**

Want more information on our record high number of reported cases of coccidioidomycosis in 2004? Or 20 year low rates of reported shigellosis cases? The 2004 Infectious Disease Epidemiology Annual Report is now available online at [www.azdhs.gov/phs/oids/reports.htm](http://www.azdhs.gov/phs/oids/reports.htm). The report includes statistics on communicable diseases, outbreak investigations, and an evaluation of recent trends in infectious diseases in Arizona.

## **Hurricane Katrina Arizona Epidemiology Report Posted on the ADHS Web site**

As part of the response activities to Hurricane Katrina, Arizona housed and provided medical care to over 800 hurricane evacuees. Analysis of available clinic data indicated

that one of the primary reasons for medical visits were lost medications/personal health items, followed by gastrointestinal and respiratory symptoms. Surveillance activities identified no major infectious disease outbreaks among shelter residents. The Infectious Disease Epidemiology Program prepared a report on the health status and epidemiology of evacuees seen at the Red Cross shelter medical clinic. The entire report can be viewed at [www.azdhs.gov/phs/oids/pdf/adhs\\_katrina\\_epi\\_report.pdf](http://www.azdhs.gov/phs/oids/pdf/adhs_katrina_epi_report.pdf)

## **Joint Vector-Borne/Zoonotic Diseases and Bioterrorism/Public Health Threats Conference:**

March 29-30, 2006;  
Glendale Civic Center,  
5750 West Glenn Drive,  
Glendale, AZ 85301  
Presented by: ADHS

## **30th Annual Vector-Borne and Zoonotic Diseases Conference**

With emerging disease threats like Rocky Mountain spotted fever, West Nile virus and possibly Avian influenza, the need to prepare and respond to vector-borne and zoonotic diseases has never been greater. This conference will feature a combination of local, state and federal experts to present the latest updates on vector-borne and zoonotic diseases in the Southwest.

## **6th Annual Bioterrorism and Public Health Threats Conference**

This conference provides the opportunity to learn about an important emerging threat: pandemic influenza. Various aspects of local and national pandemic influenza preparedness efforts will be addressed. You can register for the conference online by visiting: <http://www.azdhs.gov/phs/edc/edrp/es/conf.htm>

## **Amantadine and Rimantadine Should Not Be Used for Influenza This Winter**

by Karen Lewis, M.D.

On January 14, 2006, the Centers for Disease Control and Prevention (CDC) announced that clinicians should not use amantadine antivirals (amantadine or rimantadine) to treat or prevent influenza during the remainder of the 2005-2006 influenza season. Tests on influenza A (H3N2) isolates, the predominant strain currently circulating in the United States, show that they are resistant to both amantadine and rimantadine.

CDC tested 120 influenza A (H3N2) virus isolates from the 2005-2006 season and found that 91% were resistant to both amantadine and rimantadine. This contrasts with last year when only 14.5% of isolates tested were resistant; the previous year, 1.9% were resistant. The global prevalence of adamantane-resistant influenza viruses has increased from 1.9% to 12.3% over the past 3 years.

Fortunately, all H3 and H1 influenza viruses tested to date in the United States are still susceptible to the neuraminidase inhibitors (oseltamivir [Tamiflu®] and zanamivir [Relenza®]). Therefore, if an antiviral medication is needed this season for influenza, CDC recommends that either oseltamivir (Tamiflu®) or zanamivir (Relenza®) be prescribed. Oseltamivir is approved for either treatment or prophylaxis; zanamivir is approved only for treatment.

Since amantadine is used to treat the symptoms of Parkinson's disease, it should continue to be used for this indication. Viral resistance to adamantanes can emerge rapidly during treatment because a single point mutation of an amino acid can confers cross-resistance to both amantadine and rimantadine. Adamantane-resistant viruses are equally as transmissible as adamantane-sensitive viruses.

Additional information about the prevention and control of influenza is available at [www.cdc.gov/flu](http://www.cdc.gov/flu). Specific information regarding the use of the neuraminidase inhibitors is available at <http://www.cdc.gov/flu/protect/antiviral>.

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# Strategies to Help Your Patients Keep New Year's Resolutions and Live Healthier Lives

by Lisa DeMarie, M.A. and Eric Day, M.B.A.

For many people the New Year is a time to make health-related resolutions. Whether it's to lose weight, control stress, or adopt healthier eating habits, such resolutions can be difficult to keep. However, working toward these and other goals can improve a person's health. Setting realistic goals year round - and not just at the beginning of the New Year - can lead to a healthier lifestyle, improved self-esteem, and increased confidence.

**1. Don't try everything at once.** The temptation of the New Year is to create a list of everything a person has ever wanted to change. Generally, your patients will experience greater success fulfilling one or two goals than they will a list of ten. If eating healthier and getting more physical activity is their goal, ask them to start small. For example, if your patient is currently drinking whole milk, suggest they switch to 2% and work gradually towards 1%. For physical activity, have your patients identify one activity that they enjoy, such as walking or biking, and encourage them to be consistent with this activity.

**2. Be specific.** When your patients think about their goal, ask them to be as exact as possible. People who set specific goals are more likely to succeed. For example, instead of saying "I will drink more water", suggest they set a specific goal to drink 6-8 glasses of water a day. If your patient's goal is to add more physical activity into their day, encourage them to set a goal of using the stairs instead of the elevator or taking a 10-minute walk break every day.

**3. Set realistic goals.** When your patients think about setting goals, make sure that they are within their reach. For instance, if they currently lead a sedentary lifestyle, have them begin by incorporating three 10-minute bouts of a physical activity, such as walking, per day. For better eating habits, one example might be to not eliminate an entire food group entirely, such as grains, but to instead try consuming whole grains such as oats, whole wheat breads and pasta and brown rice into their meals.



**4. Believe it can be done, be flexible and remember rewards.** Stay positive about a patient's progress. Keep in mind that setbacks can happen, and if patients slip up, encourage them to keep trying. Acknowledge their achievements, even the small ones. Remind patients that their reward should not interfere with their overall goal. For example, treating yourself to your favorite movie is a more effective reward than an ice cream cone for sticking with a healthy diet.

## Resources for Professionals and Patients:

<http://www.mypyramid.gov>

[http://www.nhlbi.nih.gov/health/public/heart/obesity/lose\\_wt/index.htm](http://www.nhlbi.nih.gov/health/public/heart/obesity/lose_wt/index.htm)

<http://www.healthierliving.org/newsletter/200201/resolve.html>

<http://family.samhsa.gov/be/goals.aspx>

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